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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,184	04/02/2004	Jens Stacker	543822004600	7855
25227	7590	10/02/2006	EXAMINER	
MORRISON & FOERSTER LLP 1650 TYSONS BOULEVARD SUITE 300 MCLEAN, VA 22102			UNDERWOOD, JARREAS C	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 10/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/816,184

Applicant(s)

STACKER, JENS

Examiner

Jarreas C. Underwood

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Remarks, filed 7/25/2006, with respect to the rejection(s) of claim(s) 1 and 9 under Yang in view of Kato have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yang in view of Finarov.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-8, 16, 17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

With respect to claim 1, neither the method of determining position information or a line profile, nor utilizing the position information produce any tangible results.

Part b. *Practical Application the Produces a Useful, Concrete, and Tangible Result* under Section IV *Determine Whether the Claimed Invention Complies with the Subject Matter Eligibility Requirement of 35 U.S.C. Sec. 101*, sentence 3, in the OG Notice from 22 November 2005 states 'In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather that the final result achieved by the claimed invention is "useful, tangible, and concrete."'

Merely determining or utilizing would not appear to be sufficient to constitute a tangible result, since the outcome of the final step has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. See OG Notices: 22 November 2005, "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility".

Hence, the claims are treated as nonstatutory functional descriptive material.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-11, 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al (United States Patent 6,724,464) in view of Finarov et al (United States Patent 6,647,736).

3. As to claim 9, Yang discloses an apparatus having an optical alignment system for determining the position of an alignment mark, which is arranged on the surface of the semiconductor wafer and has regular structures, the optical alignment system comprising:

a first optical measuring device for determining a first position information item of the alignment mark in a predetermined direction with the aid of an optical measurement method that is optimized for position determination (Figure 1, element AS and column 7, line 63 – column 8, line 10),

a positioning device for setting the relative position of the semiconductor wafer with respect to the second position information item (Figure 1, element 24 and column 7, lines 45-52).

While Yang discloses a second optical measuring device (Figure 1, elements 21, 22), Yang fails to teach the determining a line profile for the alignment mark in the predetermined direction with the aid of an optical measurement method that is optimized for line profile determination. However to do so is well known as taught by Finarov. Finarov teaches determining a line profile for the alignment mark in the predetermined direction with the aid of an optical measurement method that is optimized for line profile determination (column 5, lines 3-23). It would have been obvious to one of ordinary skill in the art at the time of invention to determine a line profile for the alignment mark in the predetermined direction with the aid of an optical measurement method that is optimized for line profile determination, in order to achieve both high accuracy and high reliability measurements.

While Yang teaches a data processing device (Figure 5, element 30), Yang fails to teach it is configured to determine a second position information item of the alignment mark by correcting the first position information item utilizing the line profile of the alignment mark. However to do so is well known as taught by Finarov. Finarov teaches determining a second position information item of the alignment mark by correcting the first position information item (column 5, lines 41-47) utilizing the line profile of the alignment mark (column 5, lines 3-9). It would have been obvious to one of ordinary skill in the art at the time of invention to determine a second position information item of

the alignment mark by correcting the first position information item utilizing the line profile of the alignment mark, in order to achieve both high accuracy and high reliability measurements.

4. As to claim 10, Yang in view of Finarov discloses everything claimed, as applied above in claim 9, in addition Yang teaches the first optical measuring device comprising an alignment microscope, said alignment microscope configured to scan the alignment mark and measure an optical parameter of a light radiation influenced by the alignment mark (column 7, line 63 – column 8, line 10).

5. As to claim 11, Yang in view of Finarov discloses everything claimed, as applied above in claim 9, in addition Finarov teaches the second optical measuring device comprising an optical scattered radiation measuring device for detecting diffraction patterns which are caused by the interaction of light radiation from a light source with the regular structures of the alignment mark (column 7, line 66 – column 8, line 18). It would have been obvious to one having ordinary skill in the art at the time of invention to include a second optical measuring device comprising an optical scattered radiation measuring device for detecting diffraction patterns which are caused by the interaction of light radiation from a light source with the regular structures of the alignment mark, in order to detect light returned from the structure with different solid angles and/or states of polarization.

6. As to claim 13, Yang in view of Finarov discloses everything claimed, as applied above in claim 9, in addition Finarov teaches a data processing device which determines the line profile of the alignment mark from the diffraction patterns (column 4,

lines 18-47). It would have been obvious to one of ordinary skill in the art at the time of invention to include a data processing device which determines the line profile of the alignment mark from the diffraction patterns, in order to detect light returned from the structure with different solid angles and/or states of polarization.

7. As to claim 14, Yang in view of Finarov discloses everything claimed, as applied above in claim 13, in addition Finarov teaches a data processing device having a comparison device configured to adjust the diffraction patterns determined with diffraction patterns of a database (column 17, lines 10-15). It would have been obvious to one of ordinary skill in the art at the time of invention to include a data processing device having a comparison device configured to adjust the diffraction patterns determined with diffraction patterns of a database, in order to find the best fitting for the spectra.

8. As to claim 15, Yang in view of Finarov discloses everything claimed, as applied above in claim 9, in addition Yang teaches the optical alignment system is arranged within a lithography installation (Figure 1).

9. As to claim 1, 4, 5 and 6, the method would flow from the apparatus of claim 9, 11, 10 and 14, respectively.

10. As to claim 2, the method would flow from the apparatus of claim 10. Examiner refers applicant to Yang column 14, lines 49-56, and Finarov column 4, lines 18-62.

11. As to claim 3, the method would flow from the apparatus of claim 10. Examiner refers applicant to Yang column 4, lines 44-47.

12. As to claim 7, the method would flow from the apparatus of claim 9. Examiner refers applicant to Yang Figure 3, elements 91c and 91d, which comprise an orthogonal set.

13. As to claim 8, the method would flow from the apparatus of claim 9. Examiner refers applicant to Yang Figure 3.

14. As to claim 16, the method would flow from the apparatus of claims 11 and 14.

15. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Finarov, in further view of Kato (United States Patent 5,726,757).

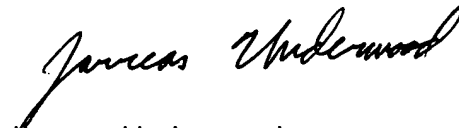
Yang in view of Finarov discloses everything claimed, as applied above in claim 1, with the exception of the regular structures comprising point grids oriented orthogonally with respect to the predetermined direction. However to do so is well known as taught by Kato. Kato teaches structures comprising point grids oriented orthogonally with respect to the predetermined direction (Figure 18). It would have been obvious to one of ordinary skill in the art at the time of invention to include structures comprising point grids oriented orthogonally with respect to the predetermined direction, in order to provide an oriented periodic reference structure without requiring the rotation of the substrate.

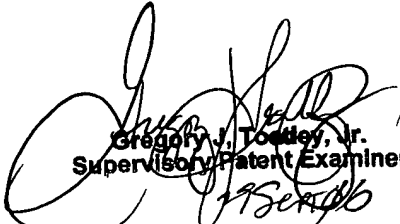
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jarreas C. Underwood whose telephone number is (575) 272-1536. The examiner can normally be reached on Monday-Friday 0600-1430.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jarreas Underwood
Patent Examiner
Art Unit 2877
9/29/2006


Gregory J. Toatley, Jr.
Supervisory Patent Examiner

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